

## Military Electronic Medical Records Support Quality Treatment Abroad

By Sandra Basu

WASHINGTON—Army officials are hoping that a computerized information system will help a U.S. embassy medical clinic in Iraq enhance the care it provides patients. The embassy clinic has recently adopted an Army electronic medical recording information management system, called Medical Communications for Combat Casualty Care (MC4), which allows medical providers to share critical medical information electronically from remote locations, according to Lt. Col. Ed Clayton, MSC, USA, the MC4 product manager located at Fort Detrick, Md.

Lt. Col. Clayton said that MC4 is the deployed tactical piece of the Department of Defense's (DoD) electronic medical record known as the Armed Forces Health Longitudinal Technology Application (AHLTA). DoD officials have said that the goal is to have AHLTA fully implemented throughout the military health care system by December of 2006. MC4 uses software from a program called Theater Medical Information Program (TMIP) that is jointly used by the Army, Navy, Air Force and Marines. The system, which uses laptops and handheld units, has been sent into theater to support deployed medical forces and was first deployed in 2003 to support Operation Iraqi Freedom (OIF).

"MC4, for the Army, is the deployed tactical piece of AHLTA, the part of it that goes to Army medical units that deploy. Software programs that run on mainframes at hospitals don't necessarily work well on laptops and handhelds bouncing around the desert," Lt. Col. Clayton said. "There are separate software programs for the tactical side than there are for the fixed medical treatment facility side. They are corresponding and go hand-in-hand and have the same look and feel. They just run differently."

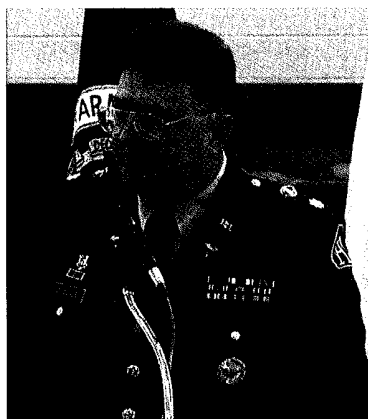
At the request of the 10<sup>th</sup> Combat Support Hospital (CSH) in Iraq and the 728<sup>th</sup> Medical Company, the U.S. Embassy Clinic in Baghdad was linked to the 10<sup>th</sup> CSH using MC4 laptops. The U.S. Embassy Clinic in Baghdad is a medical clinic comprised of the Department of State (DoS) Medical Unit and the 728<sup>th</sup> Medical Company. The clinic is staffed by DoS providers, five medics and one military physician and serves U.S. military personnel assigned to the Multi National Force in Iraq, in addition to State Department employees, including the U.S. Ambassador and his staff.

Lt. Col. Clayton said the embassy clinic began using MC4 towards the end of last year, and is the first embassy clinic to use it. Before MC4, the embassy clinic in Baghdad had been using paper to keep its medical records.

"They [the embassy] have established communications with their partner, the 10<sup>th</sup> Combat Support Hospital. As a result they are able to capture medical records and order laboratory pharmacy and radiology procedures from the 10<sup>th</sup> CSH," Lt. Col. Clayton said. "Before MC4, they [the embassy clinic] did it all by paper, which can be cumbersome on the battlefield. If they wanted to order from the pharmacy, for example, they would have to fill out forms, ship those forms

off to the 10<sup>th</sup> CSH, or wherever else they were getting their pharmacy from, and have all that delivered. Now, all that is done electronically as the health care provider is sitting down with their patient. They enter the pharmacy information right there into the computer and it is all ordered electronically."

The Army, according to Lt. Col. Clayton, has fielded over 10,000 MC4



Lt. Col. Ed Clayton

systems as of January, and as of the end of December of 2005, had captured over 170,000 patient encounters electronically using the system. Geographically, it is deployed all over Southwest Asia, and there are medical units in the U.S. that have it.

### An Electronic Health Care Record On The Battlefield

Lt. Col. Clayton said that MC4 has been in existence since 1999 as a result of a push to provide all servicemembers with electronic medical records.

"The program was established in 1999, as a result of several things. In 1997, there was a presidential advisory committee that recommended that the Department of Defense establish a system that includes an electronic medical record for all servicemembers. In that same year, Congress enacted a Title 10 law, which required the Secretary of Defense to establish a system, part of which included an electronic medical record. The Army's response to that was to establish a program called MC4. The program was established to do, primarily three things," he said. "One, was to provide a medical electronic health record for those soldiers who are deployed. The second major area was to provide commanders on the ground with medical situational awareness information, which enables them to do their missions better. The third was to provide other Army-unique software solutions to deployed Army medical units."

Lt. Col. Clayton said that the electronic medical record is one part of MC4, but another critical component of it is that it allows for commanders on the ground to get a snapshot of the health of troops.

"The electronic medical record is a part of that program, another part of it is medical situational awareness. Those medical records are captured in a database called the Joint Medical Workstation,

otherwise known as (JMeWS). By using JMeWS, the medical commanders can get the medical information they need for operations. For example, if a unit commander wants to know how many cases of flu did I have in such-and-such unit last week, they can get on the JMeWS database and find the information out and make a determination as to whether or not he needs to provide influenza vaccine to his Forces," he said.

Lt. Col. Clayton explained that the information captured by MC4 is shared into a common database and can be retrieved by other military medical facilities. The MC4 system includes giving field medics a handheld computerized device on which they can electronically capture medical information about a casualty in theater. Combat support hospitals and clinics are given laptops with the software loaded on them to electronically capture information from patients.

The advantage of the MC4 package, according to Lt. Col. Clayton, is that it allows records to come directly from the battlefield. Medics use the MC4 handheld to capture information and when they take their handhelds back to their battalion station or military medical treatment facility, they can hook it up to their MC4 laptop and it automatically uploads into AHLTA.

Like any computer program, users of MC4 need to be trained. Lt. Col. Clayton said that they have training personnel that train medical professionals on the use of the system. In addition, there are various means of support that users can get after they have deployed.

"We have a tiered level support. We have regional support teams, both in the United States and Europe and in southwest Asia. Some of those support teams have members embedded in some of those medical units, depending on which unit, where they are located and what their mission is. We also have a 24-hour, seven-days-a-week help desk that is located here in the United States and can be reached by either e-mail or telephone that can provide help. We also have a Web site where people can leave questions and get answers," Lt. Col. Clayton said.

### Improving Efficiency In Care

Lt. Col. Clayton said that MC4 has made a big difference in military health care because it has allowed for the capturing of medical data for servicemembers on the battlefield.

"I assumed command of MC4 back in August. As I was preparing for assuming command, I talked to a lot of physicians that had been deployed, or physicians at Landstuhl [Regional Medical Center] in Germany. Before MC4, patients would often show up without any medical records at all. The doctor would be sitting there with some guy who had some kind of surgery in theater, but not knowing why the surgery was done, what was the status of it, and what still needed to be done. So they were in a quandary as to

what to do next," he said. "With the electronic records, the medic who first treats the casualty has the handheld and he can enter information into his handheld, [and] that information is transported up the chain electronically. When that patient then arrives at a treatment facility all that information is captured electronically into the database. So by the time a doctor anywhere else in the world, whether it be, Walter Reed [Army Medical Center in Washington, D.C.], Landstuhl or Kuwait, or anywhere else wants to see what happened, they can get on the database and they can see exactly what treatment was provided and what still needs to be done, etc. Soldiers are now getting better medical care because physicians are now better informed as to what was done on the battlefield."

Lt. Col. Clayton said that he anticipates that as more clinics and facilities process medical information electronically, health care for servicemembers will be improved. He said that he recalls how using paper medical records during his Army career was often inconvenient.

"I've been in the Army now close to 20 years, and everywhere I would go I would always have to go to the hospital and get out my paper records, which means that someone has to file them and store them somewhere and find them and make them available to me so I can take them to the next doctor that treats me. [That doctor] has to look through to see what he wants out of that record, and it eventually goes back to the warehouse or file storage area and someone actually has to file that stuff away," he said.

As a result of MC4, the medical staff at the U.S. Embassy in Iraq can electronically complete order entries and retrieve results as if they were in the CSH, which is located more than a half a mile away from the embassy. Embassy medical staff can also electronically order laboratory, radiology and pharmacy services, and send the patient to the hospital without a lengthy paper trail.

Additionally, Lt. Col. Clayton said the embassy's medical staff can use MC4 to retrieve results of any test that they have ordered. Previously, the medical staff would have to travel to the CSH several times a week and provide written lists to the hospital staff to retrieve patient results. MC4 also allows health care providers to monitor patients' conditions by allowing them to electronically review inpatient charts immediately upon completion. This provides a simple, fast and accurate way for medical personnel to share patient updates with their unit or embassy superiors.

"A patient is seen at the embassy clinic, and for whatever reason is referred to the CSH. In the old days, you would have to fill out all the paperwork at the [embassy] clinic and the patient goes to the CSH and they would have to start new paperwork, whenever they arrived at the CSH. Now electronically, when that patient is first seen at the [embassy] clinic, that information is uploaded into a database, so if that patient is referred to the CSH that information is already in the database. The CSH wouldn't have to reenter that information," Lt. Col. Clayton said.